Strategy Research Project

JOINT IMPROVISED EXPLOSIVE DEVICE DEFEAT ORGANIZATION: ANOMALY OR FUTURE ROADMAP

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USAWC CLASS OF 2008

U.S. Army War College, Carlisle Barracks, PA 17013-5050

Report Documentation Page

Form Approved
OMB No. 0704-0188

1. REPORT DATE	2. REPORT TYPE	3. DATES COVERED
15 MAR 2008	**Strategy Research Project**	**00-00-2007 to 00-00-2008**

4. TITLE AND SUBTITLE	5a. CONTRACT NUMBER
Joint Improvised Explosive Device Defeat Organization: Anomaly or Future Roadmap	5b. GRANT NUMBER
	5c. PROGRAM ELEMENT NUMBER
6. AUTHOR(S)	5d. PROJECT NUMBER
Robert Sadowski	5e. TASK NUMBER
	5f. WORK UNIT NUMBER
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES)	8. PERFORMING ORGANIZATION REPORT NUMBER
U.S. Army War College ,122 Forbes Ave.,Carlisle,PA,17013-5220	
9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES)	10. SPONSOR/MONITOR'S ACRONYM(S)
	11. SPONSOR/MONITOR'S REPORT NUMBER(S)

12. DISTRIBUTION/AVAILABILITY STATEMENT
Approved for public release; distribution unlimited

13. SUPPLEMENTARY NOTES

14. ABSTRACT
See attached

15. SUBJECT TERMS

16. SECURITY CLASSIFICATION OF:			17. LIMITATION OF ABSTRACT	18. NUMBER OF PAGES	19a. NAME OF RESPONSIBLE PERSON
a. REPORT	b. ABSTRACT	c. THIS PAGE			
unclassified	**unclassified**	**unclassified**	**Same as Report (SAR)**	**28**	

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USAWC STRATEGY RESEARCH PROJECT

JOINT IMPROVISED EXPLOSIVE DEVICE DEFEAT ORGANIZATION: ANOMALY OR FUTURE ROADMAP

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This SRP is submitted in partial fulfillment of the requirements of the Master of Strategic Studies Degree. The U.S. Army War College is accredited by the Commission on Higher Education of the Middle States Association of Colleges and Schools, 3624 Market Street, Philadelphia, PA 19104, (215) 662-5606. The Commission on Higher Education is an institutional accrediting agency recognized by the U.S. Secretary of Education and the Council for Higher Education Accreditation.

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ABSTRACT

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TITLE: Joint Improvised Explosive Device Defeat Organization: Anomaly or Future Roadmap

FORMAT: Strategy Research Project

DATE: 25 March 2008 WORD COUNT: 5,421 PAGES: 28

KEY TERMS: JIEDDO, Asymmetric Threat, Science and Technology

CLASSIFICATION: Unclassified

Asymmetric threats and capabilities have long characterized the conduct of war and every era seems to have its own incarnation. Exemplars include the phalanx, longbow, and recently Improvised Explosive Devices (IEDs). The national response to the dramatic increase in IEDs in the current conflict began as a small cell in 2003. Within four years, the response evolved into the Joint IED Defeat Organization which is currently a $3 billion, 300-person organization answerable to the Deputy Undersecretary for Defense, but coordinating the activity of thousands. JIEDDO itself has been compared to a “Manhattan-style” project. This paper provides historical perspective through case studies while exploring other analogs such as the North Atlantic shipping tragedy in WWII. More important, discerning patterns that emerge offers glimpses on how we should respond to future threats. Does the JIEDDO model represent a single point in time or does it provide a representative guide for solving difficult issues that cross service, material, agency, and national lines? Solutions to asymmetric threats have perceived single answers or “silver bullet” approaches, but in reality require

integration across a wide domain. This is not only a contemporary assessment of JIEDDO, but a comment echoed at the close of World War II.

JOINT IMPROVISED EXPLOSIVE DEVICE DEFEAT ORGANIZATION: ANOMALY OR FUTURE ROADMAP

Asymmetric threats and capabilities have long characterized the conduct of war and every era seems to have its own incarnation. Exemplars include the phalanx, longbow, and recently Improvised Explosive Devices (IEDs). The dramatic increase in IED employment in the Middle East cost lives and degraded national will. The IED became the tactic of choice among insurgents and terrorists with over eighty-one thousand total attacks in Iraq by the end of 2007.[1] The national response has evolved over the last five years. What began as a small cell in 2003 has grown into the Joint IED Defeat Organization (JIEDDO) which is currently a $3 billion, 300-person enterprise at the Deputy Undersecretary for Defense level.

JIEDDO itself has been compared to a “Manhattan-style” project. Case studies from World War II (WWII) provide a degree of historical perspective. The Battle for the Atlantic pitted Allies against the German U-boat menace. Unprepared, mercantile shipping suffered dramatic losses at the beginning of WWII. The antisubmarine warfare response elicits a far better analogy than the Manhattan Project. Beyond the two historical comparisons, discerning patterns that emerge offers glimpses on how we should respond to future threats. Does the JIEDDO model represent a single point in time or does it provide a representative guide for solving difficult issues that cross service, material, agency, and national lines? Solutions to asymmetric threats have perceived single answers or “silver bullet” approaches, but in reality require integration across a wide domain. This is not only a contemporary assessment of JIEDDO, but a comment echoed at the close of World War II.

Case Study I: Twisting Path to the Atomic Bomb

The Manhattan Project of American mythos envisions the power of a nation focused on accomplishing a task of immense purport. The project's actual origin was far less certain. The father of the H-bomb, Edwin Teller, lamented that "there is little mention of the futile efforts of the scientists in 1939 to awaken the interest of the military authorities in the atomic bomb."[2] Rather than the logical result of concerted defense research, the Manhattan project may never have occurred save for the persistent efforts of Hungarian émigrés and a little providence.

Hungarian physicist Leo Szilárd recounts an interesting tale of how he visualized the first nuclear chain reaction while crossing a British street. He pictured finding an atomic nucleus that would release two neutrons after bombardment with a single neutron. If this were possible, then a sustainable reaction could occur that would experience geometric growth.[3] Lise Meitner and Otto Frisch announced in 1939 that the uranium atom underwent splitting through neutron irradiation in a process they termed "fission."[4] The most energetic chemical reactions produced a few electron volts (eV) per atom while the fissioned uranium atom produced over two hundred million eV. Joliot-Curie subsequently discovered that the uranium atom released at least two neutrons per fission event. The enormous potential to release large amounts of energy whether for peace or war was grasped by contemporary physicists. The preliminary pieces needed to create Leo Szilárd's chain reaction had fallen into place.

Many prominent physicists emigrated from Europe to escape the oncoming war and Nazi persecution. Hungarian born, Jewish physicists Leo Szilárd and Eugene Wigner were among those that came to the United States. Newspaper articles touted the promise of atomic energy, however most American physicists doubted its realization

and no official U.S. atomic energy program existed. Leo Szilárd and Eugene Wigner feared Nazi Germany might lead development of atomic weaponry, especially after Germany halted uranium ore sales from occupied Czechoslovakia. They approached Enrico Fermi and the administration to warn of the threat, but were rebuffed.[5] They needed an advocate with sufficient standing who could caution the highest levels of government. They found such a person in Albert Einstein.

Leo Szilárd and Eugene Wigner met with Albert Einstein at a summer lodge in Peconic, Long Island. Lost, they may have never found his cabin had they not asked for directions from a local child.[6] Einstein agreed to their request and signed the famous letter warning President Roosevelt of the threat posed by atomic weaponry. Even with the letter, Szilárd did not have a means to deliver it to the president. Through another refugee, he contacted noted Wall Street economist Alexander Sachs who was a personal adviser to the Roosevelt administration. He agreed to personally take Einstein's letter to the president. President Roosevelt, impressed by Sachs' arguments, appointed an Advisory Committee on Uranium.[7]

The Uranium committee consisted of members from the Army, Navy, and Bureau of Standards. They met intermittently with leading researchers and developed a modest program funding development in the field. Impetus for the Uranium committee heightened in 1940, but only after intelligence indicated that the Kaiser Wilhelm Institute in Berlin had a major research initiative exploring uranium.[8] Dr. Vannevar Bush, a former Massachusetts Institute of Technology vice-president and professor, worked with the executive branch to form the National Defense Research Committee (NDRC) whose mission was mobilizing scientific community talent for possible American involvement in

the impending war. The NDRC initially funded sixteen uranium projects in 1941 totaling three-hundred thousand dollars.[9] As progress and potential for atomic weapons grew, Dr. Bush realized that the NDRC could not handle the magnitude of the task. He quickly developed a higher level Office of Scientific Research and Development (OSRD) of which the NDRC became a subcommittee.

Advances rapidly occurred on the theoretical front. Naturally occurring Uranium (U) consists of three major isotopes: U238 in approximately ninety-nine percent abundance, U235 in approximately one-percent abundance (0.71%), and U234 in trace amounts.[10] U235 readily fissions with low energy neutrons while U238 needs extremely high energy neutrons. If naturally occurring uranium could be enriched by enhancing the U235 percentage, then a self-sustained atomic reaction could be achieved. The second discovery was U238 transmutation through deuteron absorption. The artificial isotope created was a readily fissionable material called Plutonium 239 (Pu239). Deuterons are the nuclei of deuterium molecules otherwise known as heavy water. In the laboratory, only sub-microscopic quantities of U235 had been isolated from uranium ore. The challenge in enriching uranium was that U235 and U238 behaved the same chemically. Kilograms of material were needed for weapons production and thus necessitated industrial scale separation techniques.[11] Separating Pu239 from U238 was simpler using standard chemical approaches, but required development of industrial scale irradiation.[12] By either approach, the likely path to a weapon had been laid.

British research reports confirmed that an atomic weapon may be achievable by the end of the war. On 6 December 1941, more than two years after Einstein’s letter and the day before Pearl Harbor, President Roosevelt decided to apply in earnest

"substantial financial and technical resources" to develop an atomic weapon.[13] To their credit, OSRD relinquished control of the bomb program as it grew beyond an initial research exercise and into full-fledged development. Because large production plants were required, the task fell to the U.S. Army Corps of Engineers. However the first year of the program was beset with constant delays. A change in direction was needed and the leadership turned to the officer who oversaw construction of the world's largest office building called the Pentagon.[14] General Leslie Groves quickly grasped that the actual problem was much larger than anticipated. Beyond building the production plants, developing a weaponized device and delivery means also had to be accomplished. The perceived competition with Nazi Germany heightened the tension and introduced an element of haste. Decisions often proceeded with basic gaps in knowledge. Considerable risk often accompanies expedient means. Groves acknowledged that they took risks that would be considered "reckless in the extreme" in "more normal times."[15] Yet, despite the scientific and engineering challenges, the project was successful.

Groves later commented that five main factors contributed to the program's success. A "clearly defined, unmistakable, specific objective" was the foremost.[16] The senior leadership understood the ultimate aim whether or not doubt existed that it was achievable. This understanding empowered the leadership to make decisions, apportion resources, and tailor responses that furthered the objective. Although compartmentalized for security purposes, each subordinate element had well–defined, specified tasks. The tasks were distributed such that the "sum of their parts would enable accomplishment of the overall mission."[17] The restricted problem space also

promoted operational efficiency. Delegated decision making authority was the “only approach to handle such a complex task.” Delegation enabled “positive, clear-cut, unquestioned direction at all levels.”[18] The project was never designed as a permanent organization, which precluded empire building. It made “maximum use of already existing agencies; facilities; and services: governmental, industrial, and academic.” Finally, the Manhattan project had full government backing combined with the “nearly infinite potential of American science, engineering, and industry.”[19]

Case Study II: The Undersea Threat Resurfaces

Unlike the Manhattan Project that began as “potential threat” from an adversary, the mercantile submarine threat first surfaced during World War I. Although predominantly a naval issue, the eventual solution marshaled efforts of multiple services and countries. Strikingly similar to the Manhattan Project, military authorities were initially reluctant to heed concerned scientists. Montgomery C. Meigs details the important role scientists played in antisubmarine efforts in his treatise *Slide Rules and Submarines*.

At the outset of WWI, U-boats followed the technique used by surface commercial raiders called Prize Ordinance to attack merchant vessels.[20] U-boats would surface, allow crews to escape, and sink the craft normally using a deck gun. Employing Prize Ordinance was a timely process that left the submarine vulnerable to surface attack. In unrestricted submarine warfare U-boats attack mercantile shipping without warning. Unrestricted submarine warfare was contrary to period naval norms and considered casus belli. Early in the conflict, German high command contemplated

unrestricted submarine warfare, but declined since maintaining American neutrality was of strategic import.[21]

As the war progressed, the Allied naval blockade had a pronounced impact on German mercantile shipping and severely impacted the German war effort. While trying to break the blockade, the battle of Jutland confirmed that the Kaiser's Navy could not wrest high sea control from the British Navy. In 1917, the German High Command instituted unrestricted submarine warfare and the effects were immediate. Within one month, five percent of the British merchant fleet lay on the ocean floor.[22] Merchant security was not a mission the British Admiralty was initially trained and equipped to confront. The Admiralty's initial response was slow, but convoys with surface escorts greatly reduced losses by the end of the conflict. Surface fleet hunters had turned into convoy shepherds.[23]

During the interwar period, the Admiralty recognized the threat, but neglected many of the lessons. This proved a costly omission at the outset of WWII. The response on the American side was dismal. Despite heavy losses seen by the British, the predominant American naval view of the oncoming conflict was in terms of large surface engagements. The Navy "had no plans ready for reasonable protection to shipping when the submarines struck, and was unable to improvise them for several months."[24] The naval officer of the day knew more about "the fourteen-inch guns brandished by his battleship than he did about the ocean that he and his ship depended upon absolutely."[25]

In late 1940, the NDRC directed a National Academy Science review of subsurface warfare. The "Report of the Committee on the Submarine Problem" was

better known by the study's chairman: Edwin H. Colpitts. Dr. Colpitts was an eminent communications engineer and former vice president at Bell Telephone Laboratories.[26] The report bore his name and soundly faulted the scientific basis of the Navy's antisubmarine studies observing that "an altogether inadequate research effort on fundamentals has been put forth since the last war."[27] The report concluded that there was "also a question of tactics and tactical doctrine; of personnel and training; and of operational records."[28]

The report received a less than favorable appraisal from naval officials who were indignant that scientists opine on matters they felt were within naval purview. To be fair, the paucity of interwar defense budgets that reflected the prevalent isolationist view also limited research efforts, but the operational risk should not have escaped so many practitioners. Admiral Karl Dönitz, the father of German submarine warfare, described the prevalent bias in his memoirs: "How difficult is it for a naval officer who has been educated and trained in surface warfare clearly to appreciate and assimilate the importance of any other type of fighting, such as submarine warfare?"[29]

The German submarine effort under Dönitz was not plagued by the large surface fleet predisposition. He understood the limited chances for success that the German Navy had in directly confronting the British Navy. Rather than attacking the British Navy directly, the submarine offered an opportunity to attack the British economy directly. Dönitz's thought was clear: "The strategic task of the German Navy was to wage war on trade; its objective was therefore to sink as many enemy ships as it could. The sinking of ships was the only thing that counted."[30] He developed tactics and techniques to conduct an economic campaign by sinking merchant vessels faster than they could be

replaced. He called this approach Rudeltaktik or literally wolf pack tactics.[31] Rudeltaktik was a response to escorted convoys seen at the end of WWI. They were massed, organized U-boat attacks designed to overwhelm the escorts and throw the collective convoy defense into disarray.

Comparatively few U-boats prowled the North Atlantic early in the war and Dönitz lacked sufficient capacity envisioned in Rudeltaktik. Notwithstanding the scarce resources, those few U-boats left their mark. Germans sunk tonnage averaging three hundred thousand per month. The Allies replaced shipping tonnage at roughly one-third the loss rate.[32] After German submarine production increased and the fall of France enabled long-range communications to coordinate massed attacks, the Allies bore the full brunt of wolf pack tactics. Over the last nine months of 1941, the Allies endured three hundred merchant ships lost with the German cost of roughly twenty five U-boats.[33] In the first nine months following Pearl Harbor, U-boats sunk on average eighty-seven ships per month with losses totaling nearly eight-hundred vessels.[34] Over 140 vessels were lost in the month of June alone. By September, the U.S. had lost over five percent of its total available shipping. The staggering losses led Admiral King's chief of staff to bewail that "we will in the not distant future be faced with the breakdown of essential sea traffic."[35] Without concerted action, it would not take long to turn the North Atlantic into an Allied graveyard.

In anticipation of the Colpitts' findings, the NDRC began a parallel effort surveying existing work in the antisubmarine field. An informal effort at first, NDRC formalized Section C-4 under Dr. John Tate after the Bureau of Ships requested a study of antisubmarine devices.[36] However, the scientists were not interested in limiting their

scope to “gadgetry.” They argued for application of the scientific method to the entire submarine detection and destruction problem that included characterizing the operational environment.[37] Scientists were neither doctrinally wedded nor inclined to view the subject in a single dimension. They employed a systemic view of the situation that also incorporated friendly capabilities. This requires not only understanding the submarine itself, but also understanding the environment in which it exists. Their initial results were tantalizing. They calculated a one-in-twenty likelihood for successfully attacking a submerged craft.[38] Seeking validation of their assessment, they needed operational characteristics from the Navy. After requesting performance information, they soon learned that the Navy “did not know in any quantitative manner the operational characteristics of their antisubmarine craft and gear when used by the average crew in actual wartime conditions.”[39]

The month prior to Pearl Harbor, Section C4 met with all naval entities that had a role in Anti-Submarine Warfare (ASW). These organizations included bureaus with functional responsibilities: Bureau of Ships, Bureau of Ordnance, and Bureau of Aviation. Each bureau acted independently. Bureau independence and segmentation kept power from concentrating under the Chief of Naval Operations. The Office of Coordinator of Research and Development had no executive authority. Thus the Navy lacked any single entity that could achieve, let alone compel, consensus. The NDRC scientists and engineers grasped the necessity for “overall intelligent planning to ensure that … resources were directed into well-conceived programs of development and research … and not into a welter of gadgetry.”[40]

Navy bureau compartmentalization promoted nearly the opposite effect. The disparate bureaus wanted NDRC research limited to technical questions within the parochial view of each bureau. After the meeting failed to achieve an integrated effort, Section C4 ignored the bureau desires and undertook a comprehensive “inquiry into the whole field of subsurface warfare.”[41] They initiated a scientific analysis of the U-boat system including the air and sea environs. They matured technologies that matched against “operational possibilities” suggested by their analysis. They became a strong proponent of air assets to kill submarines. They also developed training programs for equipment operators. By default, authority over research and development fell onto Section C4 rather than the Navy. The civilian scientists argued that the “entire job be placed under unified, authoritative, and inspired leadership.”[42] It was not until May 1943 that the U.S. Navy placed a senior official with oversight of ASW advancements.

One element was still missing. The Navy lacked any operational data on antisubmarine attacks. At the Navy’s request, NDRC formed an Anti-Submarine Warfare Operational Research Group (ASWORG). ASWORG applied quantitative techniques to improve search and attack methods by careful field analysis. Their ability to present statistically valid data and insights” could overcome the decision maker’s prejudice for “emotion and tradition.”[43] Coupled with military practitioners, the group quickly discovered that “the new tools and tactics are inescapably bound together.”[44] Their efforts would eventually lead to tactics, techniques and procedures (TTPs) that improved Allied lethality by ten-fold.

Admiral Samuel Eliot Morison, who wrote an unofficial combat operations history after the war, described the eventual antisubmarine solutions with in five main areas:

organization and administration; training including devices and schools; “analysis-research” units; capable ships; and an air fleet.[45] He further relates that the submarine problem was analogous to “lifting an immense jellyfish.” No single answer could produce the complete solution.

> In seeking a solution to the submarine problem a persistent delusion fostered by the side-line strategists, and by certain naval officers too, was the notion that some one “answer” could be found; that the convoy system (or complete dispersal), building more and faster merchant vessels (or more and faster escorts), improving depth-charge procedures, replacing depth-charges by ahead-firing devices, night illumination, replacing surface escorts by aircraft, improved sound devices and radar, better gunnery control, bombing the U-boat bases in France and the shipyard in Germany, and other less practicable methods, techniques or devices, would win the war against the U-boats. Actually the problem of combating the submarine was like that of lifting an immense jellyfish. Grasping it with two hands accomplishing nothing, but with hands-all-around and heaving together, one could easily do something to the so-and-so. Progress was made against the submarine only by seven-rayed cooperation: between the United States, British, Canadian, and Brazilian Navies, among different branches of the American armed forces and merchant marine, between all bureaus of the Navy Department, between naval officers especially detailed for anti-submarine work and the Operational Research Group of civilian scientists, between foreign policy and military operations, and between the armed forces and the public.[46]

Meigs concludes that the U-boat was defeated by a combination of factors that build upon Morrison’s review.[47] Basic science and statistics provided an unbiased operational assessment. Quality operational assessments required an intimate relationship between the naval practitioners and scientists. Inferences derived from operational assessments must be relevant to the operational need. Iterative operational assessment yielded doctrine optimized with equipment. Doctrinally appropriate training on the equipment reinforced and enhanced operational capability.

IEDs Enter the Lexicon

In the current Middle East conflict, Improvised Explosive Devices have become the submarines of WWII with the undersea of the Northern Atlantic replaced by Iraqi and Afghani dirt. The will of the American people, rather than her economy, is the current target. The morphing of our national IED response from a small cell of former Delta Force operators into the Joint IED Defeat Organization has similar parallels to the antisubmarine effort. The former JIEDDO operations officer, Colonel William Adamson, exhaustively detailed the organization's history in his paper titled "An Asymmetric Threat Invokes Strategic Leader Initiative: the Joint IED Defeat Organization."[48] As with the earlier Manhattan Project and ASW efforts, an effective organizational response took years to develop.

In October 2003, the Army established an IED Task Force. The first field elements went to Iraq in late 2003 for "information sharing and dissemination." The small cohort assessed the situation and made "creative recommendations on adjustments to TTPs employed by operating forces."[49] In a parallel doctrinal effort, the Army created an Asymmetric Warfare Group (AWG) whose mission was "providing Army and Joint commanders decisive advantages to counter existing and future asymmetric threats."[50] The AWG received formal congressional approval in early 2005. Commanders in Iraq were skeptical of the initial Washington-based endeavors. Among the challenges was coordinating efforts between various command levels and the lack of a theater level organization. Lacking an operational campaign plan, there was limited synchronization of multiple efforts dealing with the emerging threat.

In 2004 as the first Operation Iraqi Freedom rotation drew to a close, nearly every unit and commander rotated throughout the country. Lacking a coherent plan

reduced operational continuity and priority of effort. It also generated an information gap concerning previously generated requirements. As units left, often the knowledge about requirements departed with them. Rotating units were still acclimating to the operational environment as equipment flowed to theater with minimal support, employment planning, and training.[51] Commanders grew frustrated with training on new equipment while maintaining contact with the enemy. At the same time, the enemy increased the complexity, tactics, and quantity of IEDs.

In 2004, GEN John Abizaid, the Central Command Commander, requested a "Manhattan-like Project" for the growing IED threat.[52] DOD wrestled with an answer to GEN Abizaid's request. The service chiefs and secretaries adopted a DOD centric approach that did not integrate the interagency.[53] Two new organizations arose in July 2004: the Joint IED Defeat Task Force (JIEDDTF) and a Joint Integrated Process Team (JIPT) for IED Defeat with the Army voluntarily serving as executive agent. The combination of these organizations coordinated the DOD IED effort. A joint task force or JTF is a common approach for DOD to handle emergent challenges. Because JTFs normally support limited duration operations, staffing is done on a temporary basis. The JIEDDTF formed the nucleus and it coordinated efforts, produced threat assessments, answered Congressional queries, and served as the DOD point of contact.[54] The JIPT mission was primarily focused on technology assessment and resourcing.

The JIEDDTF organized its IED Defeat response based upon doctrinal Army assured mobility fundamentals: predict, prevent, detect, avoid, neutralize, and protect.[55] These were revised to five IED defeat tenets of predict, prevent, detect, neutralize, and mitigate. The tenets formed the conceptual framework for a comprehensive approach

that included “threat specific intelligence, integrated technology, focused training, doctrine development, and information sharing.”[56]

As casualties mounted and the number of IED attacks escalated, a concerted belief from commanders in the field and within the DOD developed that a technological solution to the IED threat existed.[57] Comments by Lt. Gen. James N. Mattis, commander of the Marine Corps Combat Development Command, echoed the position: “If we could prematurely detonate IEDs, we will change the whole face of the war.” He continued that for “a country that can put a man on the moon in 10 years, or build a nuke in 2 1/2 years of wartime effort, I don’t think we’re getting what we need from technology on that point.”[58] GEN Abizaid’s initial guidance was to bring forward any technology for use in the theater, even if it had only a “51% chance” of being effective. The search for immediate solutions was an understandable response to save lives: Senior Army leadership saw the IED problem “getting out of control” and commented that “we’ve got to stop the bleeding.”[59]

The bias for a quick technological solution steered early material solutions towards blast mitigation efforts with development of fragmentation kits for the lightly armored High Mobility Multi-purpose Wheeled Vehicles (HMMWVs) and better personal body armor. It also deterred interagency engagement for methods guided by intelligence operations.[60] Secretary Wolfowitz initiated the first large-scale efforts involving the broader Science and Technology (S&T) communities with a National Laboratory Challenge and subsequent industry initiative. The JIEDDTF conducted a joint baseline assessment of three-hundred current programs by classifying them amongst the five tenets, assessing their technical maturity, and prioritizing those closest

to fielding. Identifying the “low-hanging fruit” provided priority to the JIPT process, which could then accelerate funding.[61] The JIPT had funding authority for single initiatives up to $10 million. The Deputy Secretary reserved approval for solutions exceeding $10 million through a Senior Resource Steering Group (SRSG). Using technology capability gaps as the basis, the JIEDDTF issued a broad agency announcement that received over eight-hundred-fifty proposals. The selection process through sub-IPTs winnowed the submissions down to the most promising candidates. In the first year, seventy initiatives received funding totaling $1.2 billion.[62] By the second year, obligations had increased three-fold. JIEDDTF lacked the personnel and expertise to field these systems. The Army tasked the Rapid Equipping Force (REF) to directly support JIEDDTF fielding initiatives and speed material solutions to the warfighter.

Channeling requirements from the field also faced difficulties. Normally each service handled requirements approval and programming through its Title X responsibilities. These procedures often obviated input from the combatant commander’s priorities. In 2005, The Joint Staff instituted the Joint Universal Operational Need Statement (JUONS) to synchronize separate service approaches. Central Command required that all IED Defeat requirements pass through them for validation and prioritization using the JUONS process.[63]

Within its first year of existence, the JIEDDTF and JIPT staff realized that they lacked authority to overcome several institutional processes that hindered their ability to meet the operational need. The single paragraph memorandum establishing both the JIEDDTF and JIPT did not “provide the clarity of scope and responsibility the Pentagon bureaucracy needed.”[64] In late 2005, Secretary England responded by establishing the

Joint IED Defeat Organization to “focus (lead, advocate, coordinate) all Department of Defense actions … to defeat Improvised Explosive Devices as weapons of strategic influence.”[65] The twenty-two page memorandum, updated in 2006, detailed a comprehensive department level approach to Joint IED defeat. Secretary England’s cover letter highlighted his intent: “we will not have a business-as-usual approach … defeating IEDs is one of the highest priorities for the Department of Defense.”[66]

Establishing and implementing JIEDDO modified several normal business practices found within DOD “ranging from acquisition, budgeting, R&D, testing, and training.”[67] The JIEDDO Director now answered directly to the Deputy Secretary as opposed to the Vice Chief of Staff of the Army. Updates were at the highest levels of DOD enabling the JIEDDO Director to cultivate peer relationships with the Service Chiefs and Vice Chairman of the Joint Chiefs of Staff.[68] Acquisition authority now resided within JIEDDO, which facilitated speed and enhanced independence. The older procedures reduced risk, but complicated and lengthened field delivery. Staffing was no longer ad hoc and a joint manning document authorized permanent positions. By creating JIEDDO, Secretary England instilled a “sense of battlefield urgency” to the institution’s effort. Perhaps more importantly, his actions empowered both JIEDDO and the DOD to “galvanize its efforts.”[69]

The first JIEDDO Director was the former Commander of U.S. Army Europe: retired General Montgomery C. Meigs. GEN Meigs was serving as a professor on the Syracuse University faculty. His doctoral thesis entitled "Managing Uncertainty: Vannevar Bush, James B. Conant, and the Development of the Atomic Bomb, 1940-1945" explored the organization of the Manhattan Project.[70] He authored the

aforementioned *Slide Rules and Submarines* text. Lastly, he had recently published some "Unorthodox Thoughts on Asymmetric Warfare," which succinctly captured the IED challenge:[71]

> Defeating these new threats requires us to restructure our decision systems for operations and to reorganize our structures for intelligence requirements, collection, and fusion. It requires hybrid teams of out-of-the-box thinkers, scientists, and military professionals working under pressure together. It relies on matching agency expertise and access to the operational setting as a matter of national mandate.

Despite his academic qualifications, it was the credentials of a former four-star general that helped move the Pentagon bureaucracy. "GEN Meigs had the vision, leadership, and importantly, the trusted relationships with senior leaders in the Pentagon to accomplish the work."[72] Had Professor Meigs gone to Washington, he may not have received as warm a welcome.

A crucial component of successful ASW operations in WW II, Operational Assessment (OA) was one area needing immediate attention. The former JIEDDTF commander remarked that "we didn't develop metrics and an OA effort to gauge progress and drive the effort."[73] Reminiscent of the challenge ASWORG encountered embedding civilian scientists on operational naval vessels, JIEDDO had to convince the leadership in Iraq of the necessity for operational assessment.[74] Only after soldier and marine surveys validated the "hunger for better IED information" did the commanders in Iraq allow OA in areas of pre-deployment training, best practices, and counter-measure effectiveness.[75] JIEDDO developed a Counter-IED Operational Integration Center (COIC) that provides a joint common operational and intelligence picture of worldwide IED systems. The COIC directly supports deployed commanders with fast and accurate "fused multi-source intelligence support, operational analysis, technical products, and

training support."[76] Concurrently, the organization revamped its acquisition process including Government Accountability Office evaluation and it developed a strategic plan with Defense Science Board review.

The current structure of JIEDDO mirrors successful elements from both the Manhattan Project and the ASW responses. The JIEDDO director fulfils the unifying authority that the Manhattan Project had under Groves, but that the ASW response initially lacked. JIEDDO supports robust training efforts through Joint Centers of Excellence. These centers couple deploying service members with the latest counter-IED tactics and equipment in conditions mirroring those found in theater. Akin to the sonar scientists accompanying naval vessels, contracted law enforcement professionals enhance unit ability to target the criminal enterprises and paramilitary forces that compose IED networks. The COIC assists commanders with intelligence based offensive operations against the IED system. This is analogous to the intelligence based campaign against the U-boat refuellers that destroyed Dönitz's capability to sustain combat power.[77]

Adamson concluded that "the early IED response by DOD highlighted a lack of conceptual unity among the interagency (IA) and the Services. Over time, new agreements and organizational adaptation enabled consensus for complementary joint approaches and comprehensive rules while working through the IED problem."[78] Whether JIEDDO has been successful is still debatable. There has been marked progress in most relevant quantifiable means: decreased number of IED incidents, increased ratio of discovered IEDs to successful IED attacks, reduced casualties per IED explosion, reduced number of platforms destroyed by IEDs, increased ratio of IED

incidents per coalition force casualties, reduced support of the populace for IED use, and increased number of disruptions to the IED event chain.[79] Comparing JIEDDO to the “Manhattan Project” that GEN Abizaid requested belies the equivalent nature of the challenge. The Manhattan Project involved developing an asymmetric weapon, whereas JIEDDO is the national response to one.

History Repeats Itself

The real issue that continually arises is not the emergent threat itself, but how we organize to overcome the problem. Despite historical illusions, there is often no fast resolution to these issues. Six years elapsed from inception of the Uranium Committee to a successful test of a nuclear device. Over four years passed before the U.S. organized and mounted an effective response to North Atlantic submarines. Commanders, congressman, and constituents will often ask for the silver bullet or single answer: the technology that will sink the submarine or prematurely detonate the IED. The interactive nature of conflict with measures and countermeasures; the complex operational environment; and solution sets that exceed any single service, agency, or country should obviate this mindset. The national response ultimately must be a coherent, collective approach that looks at the system nature of the problem. If the past is any guide, we can expect similar predicaments in the future. The information age has exacerbated the challenge. It has enabled the enemy’s agility to exceed our own. For potential future threats, we may not have the luxury of time to revisit past lessons. Success will be measured by how quickly we organize, engage our senior leadership, establish appropriate interagency involvement, and establish a unified effort. Only then can we lift the “immense jellyfish” and hope to be successful.

Endnotes

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